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EXAMINER
CABRERA, ZOILA E

ART UNIT	PAPER NUMBER
2125	

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Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/772,032	PATTERSON ET AL.
	Examiner	Art Unit	
	Zoila E. Cabrera	2125	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 December 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,9,11,14,16,17,19-22,25-27 and 29-34* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *17 and 27* is/are allowed.

6)☒ Claim(s) *1-7,9,11,14,16,19-22,25,26 and 29-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Final Rejection

1.   The text of those sections of Title 35, U.S. Code not included in this action can

be found in a prior Office action.

Claims 8, 10, 12-13, 15, 18, 23-24 and 28 have been cancelled.

Claims 1-7, 9, 11, 14, 16, 17, 19-22, and 25-27 are remained for consideration.

New claims 29-34 have been added.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 11, 14, 21, 30 and 34 are rejected under 35 U.S.C. 102(b) as being

anticipated by **Kozak (US 4,511,790)**.

As for claim 11, **Kozak** discloses a system, comprising:

- a tank (Fig. 1, Tank 1); a temperature sensor configured to detect a temperature

    of a liquid residing within the tank (Col. 4, lines 50-53); a temperature control

    element coupled to the tank (Fig. 1, heating elements 5-7); memory for storing

    data indicative of a usage history of the tank temperature control element (Col. 4,

    lines 39-44; Col. 3, lines 19-25), and logic configured to automatically control the

temperature control element based on the data (Col. 4, lines 39-44; Col. 3, lines

19-25).

As for claim 34, **Kozak** discloses a method, comprising the steps of:

- detecting changes in temperature of a liquid within a tank over time (Col. 4, lines

  50-58 and line 67 – Col. 5, lines 1-2); activating a temperature control element

  based on the changes in temperature (Col. 6, lines 5-7); automatically selecting a

  temperature threshold based on the detecting step (Col. 4, lines 56-58); and

  controlling the temperature control element based on the selected temperature

  threshold (Col. 4, lines 67 – Col. 5, lines 1-9; Col. 3, lines 43-51).

Regarding claims 14, 21 and 30, **Kozak** discloses,

- the logic is configured to monitor the temperature control element in order to

  define the data (Col. 4, lines 39-44; Col. 7, lines 17-35).

- wherein the temperature control element comprises a heating element (Col. 4,

  line 42).

- the logic is configured to automatically track usage of the temperature control

  element to define the data (Col. 7, lines 17-35).

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 5-6, 9, 22, 29 and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kozak (US 4,511,790)**.

As for claim 1, **Kozak** discloses a system for controlling a temperature of a liquid residing within a tank, comprising:

- a temperature sensor configured to detect the temperature of the liquid (Col. 4, lines 50-53);

  a temperature control element configured to alter the temperature of the liquid (Fig. 1, heating elements 5-7); and

  logic configured to track usage of the temperature control element by monitoring an activation state of the temperature control element during a first time period while the temperature control element is being controlled based on a first temperature threshold (Col. 7, lines 17-35), the logic further configured to automatically select, based on a time value indicated by the clock and the usage of the temperature control element during the first time period (Col. 7, lines 17-35 and lines 58-62), a second temperature threshold for controlling the temperature control element (Col. 7, lines 65- col. 8, line 6 and Col. 8, lines 23-30, please note that by activating more heating elements a second temperature threshold is selected), the logic further configured to perform a comparison between the selected temperature threshold and the temperature detected by the temperature sensor (Col. 7, lines 65-67), and to control the temperature control element based on the comparison (Col. 6, lines 5-7).

As for claim 22, **Kozak** discloses, a system, comprising:

- a tank (Fig. 1, Tank 1); a temperature sensor coupled to the tank (Col. 4, lines 50-53); a temperature control element for controlling a temperature of a liquid residing within the tank (Fig. 1, heating elements 5-7); and logic configured to determine a value indicative of an amount of time that the temperature control element is activated during a first time period (Col. 7, lines 17-23) and to establish a temperature threshold based on the value (Col. 8, lines 23-30, i.e., please note that by energizing more heating elements a new temperature is established), the logic configured to perform a comparison between the temperature threshold and a temperature of the liquid detected by the temperature sensor (Fig. 5, Chart V, i.e., Get Difference between Tem and Temp Setting), the logic further configured to control the temperature control element based on the comparison (Col. 6, lines 5-7; Col. 10, lines 57-60 and 63-64, i.e., the switching of the loads is related to the temperature).

As for claim 31, **Kozak** discloses a method, comprising the steps of:

- selectively activating a temperature control element to keep a liquid within a tank within a desired temperature range during a first time period (Col. 4, lines 39-42); detecting activations of the temperature control element during the first time period (Col. 7, lines 17-20); automatically selecting a temperature threshold for the temperature control element based on the detecting step (Col. 6, lines 5-7; Col. 8, lines 23-30); measuring a temperature of the liquid (Col. 4, lines 51-53);

comparing the measured temperature to the temperature threshold (Fig. 5, Chart

V, i.e., Get Diff between Temp and Temp Setting); and activating the temperature

control element based on the comparing (Col. 6 lines 5-7; Col. 10, lines 57-60

and 63-64, i.e., the switching of the loads is related to the temperature).

Regarding claims 1, 22 and 31, **Kozak** does not disclose that the temperature is

measured and compared *during a second period* and the temperature control element is

controlled during a *second time period*. However, **Kozak** discloses that the

microprocessor 22 operates to **periodically** sample each of the sensor 16 and the input

units 17 and 19 in a continuous **cyclical** manner, **thereby continuously updating the**

record of the existing water temperature and the desired temperature (Col. 5, lines

65- Col. 6, line 1). **Kozak** further discloses that the difference between the actual and

the desired temperature determines the number of heating elements 5, 6 and 7 which

are to be energized (Col. 6, lines 5-7).

Therefore, it would have been obvious to a person of the ordinary skill in the art at

the time the invention was made to have measured, compared and controlled during a

second time period because it would provide a highly versatile controller using the basic

appropriate monitoring of various basic condition related factors and comparing such

factors with a historical record to produce load related control outputs for a plurality of

loads (Col. 11, lines 40-44).

As for claims 2-3, 5, 6 and 9, **Kozak** further discloses

- the temperature control element comprises a heating element (Col. 4, line 42);

- the temperature control element comprises a cooling element (Col. 4, line 42, a deactivated heating element corresponds to a cooling element);

- the logic is configured to select said temperature threshold based on a plurality of temperatures detected by a plurality of temperature sensors (Col. 4, lines 50-58, please note that the use of thermistors is well known and more that one can be used).

- the logic is configured to automatically generate data indicative of a usage history of the temperature control element, the logic further configured to automatically select the threshold based on the data (Col. 7, lines 17-35; Col. 6, lines 5-7).

- the logic is configured to determine a total amount of time that the temperature control element is activated during the first time period and to select the second temperature threshold based on the total amount of time (Col. 7, lines 17-35).

As for claim 29, **Kozak** discloses,

- the logic is configured to automatically track usage of the temperature control element to define the data (Col. 7, lines 17-20).

As for claims 32-33, Kozak further discloses,

- determining an amount of time that the temperature control element is activated during the first time period, wherein the selecting step is further based on the determined amount of time (Col. 7, lines 17-21).

- automatically defining data indicative of a usage history of the temperature control element based on the detecting step (Col. 4, lines 29-44); and

automatically selecting different temperature thresholds for the temperature

control element based on the data (Col. 4, lines 51-68).

4.   Claims 4, 16 and 26 is rejected under 35 U.S.C. 103(a) as being unpatentable

over **Kozak (US 4,511,790)** in view of **Dosani et al. (US 5,808,277).**

Regarding claims 4, 16 and 26, **Kozak** discloses the limitations of claims 1, 11

and 22 above but fails to disclose detecting a length of time that the temperature

detected by the temperature sensor remains within a specified temperature range, the

logic configured to control the temperature control element, in response to a

determination that the length of time exceeds a threshold, such that the temperature

control element causes the detected temperature to increase above a threshold for a

sufficient amount of time to ensure that bacteria within the tank is substantially killed.

However, **Dosani** discloses detecting a length of time that the temperature

detected by the temperature sensor remains within a specified temperature range (Col.

6, lines 51-58, i.e., consumption cycles and sanitizing cycles can be programmed into

the thermostat which can be in minutes, hours or any other time unit. See also Col. 3,

lines 21-28; Col. 6, lines 8-11), the logic configured to control the temperature control

element, in response to a determination that the length of time exceeds a threshold

(Col. 6, lines 51-58, please note that after a given time of each cycle the controller will

switch from consumption to sanitizing cycle). **Dosani** further discloses a domestic

electric heater that is able to regulate bacterial growth, by periodically elevating the

temperature of water throughout the water tank beyond the preset consumption

temperature to a sanitizing temperature, to destroy bacteria (Col. 1, lines 26-31; Abstract; Col. 2, lines 22-29; Col. 5, lines 5-9, i.e., please note that during sanitizing cycle the temperature is increased up to 70 degrees for a predetermined cycle or period of time).

Therefore, it would have been obvious to a person of the ordinary skill in the art at the time the invention was made to combine the teachings of **Kozak** temperature sensors with **Dosani's** electric heater which regulates bacterial growth, since this will improve **Kozak's** device to regulate bacterial growth in a water heater by elevating the temperature of the tank to destroy bacteria **(Dosani,** Col. 1, lines 26-31).

5.   Claims 7, 19-20 and 25, are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kozak (US 4,511,790)** in view of **Day et al. (US 6,375,087).**

Kozak discloses the limitations of claims 1, 11 and 22 above but fails to disclose the limitations of claims 7, 19-20 and 25. However, **Day** discloses such limitations as follows:

As for claim 7,

- the logic is configured to activate and deactivate the temperature control element based on the temperature threshold and another temperature threshold, thereby providing an activation hysteresis for the temperature control element, the logic further configured to change the activation hysteresis based on the data (Col. 3, lines 37-41);

As for claims 19-20,

- the logic is configured to control the temperature control element such that the temperature control element has an activation hysteresis, the logic configured to change the activation hysteresis based on the data (Col. 3, lines 37-41, i.e., the hybernation mode can be provided on a graduated scale based on the number of days);

- the logic is configured to decrease the hysteresis in response to a prediction that a high usage event associated with the tank is imminent (Col. 3, lines 27-33 and 37-41).

As for claim 25,

- the logic is further configured to change an activation hysteresis for the temperature control element based on the value (Col. 3, lines 37-41, i.e., hybernation mode).

Therefore, it would have been obvious to a person of the ordinary skill in the art at the time the invention was made to combine the teachings of **Kozak** with **Day** because it would provide with an effective mechanism for efficiently controlling hot water heaters and for automatically adjusting the heat based upon usage (**Day,** Col. 1, lines 35-40).

Allowable Subject Matter

6.   Claims 17 and 27 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: The prior arts of record **Kozak** does not disclose or suggest, alone or in combination, the step of:

As for claim 17, **the logic is configured to control the second temperature control element and to perform a verification that the second temperature control element is actually activated when the logic attempts to activate the second temperature control element, and wherein the logic is configured to automatically define the usage history based on the verification,** in combination with the other elements and features of the claimed invention.

Regarding claim 27, **the logic is configured to control the second temperature control element and to perform a verification that the second temperature control element is actually activated when the logic attempts to activate the second temperature control element, and wherein value is based on the verification,** in combination with the other elements and features of the claimed invention.

Response to Arguments

7.   Applicant's arguments with respect to claims 1-7, 9, 11, 14, 16, 17, 19-22, and 25-27 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

Any inquiry concerning communication or earlier communication from the

examiner should be directed to Zoila Cabrera, whose telephone number is (571) 272-

3738. The examiner can normally be reached on M-F from 8:00 a.m. to 5:30 p.m. EST

(every other Friday).

If attempts to reach the examiner by phone fail, the examiner's supervisor, Leo

Picard, can be reached on (571) 272-3749. Additionally, the fax phones for Art Unit

2125 are (703) 872-9306. Any inquiry of a general nature or relating to the status of this

application should be directed to the group receptionist at (703) 305-9600.

Zoila Cabrera
Patent Examiner
3/7/05

Jayprakash N. Gandhi
Primary Examiner
Technology Center 2800